Teacher Time

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Dawn Williams: Hi, everyone, and welcome to Teacher Time. I'm Dawn Williams.

Kristin Ainslie: I'm Kristin Ainslie.

Dawn: And we are your hosts for the show. We are both curriculum specialists here at the National Center for Quality Teaching and Learning, and both have been classroom teachers.

Kristin: That's right. So, just as we always want to know, who is here today? So please sign in if you haven't already done so. We can keep track of the attendance, the numbers that we get watching. We also welcome you to join our Teacher Time community, which is how you will get follow-ups, email announcements from us, the documents – sometimes we have a worksheet; this time we're going to have a worksheet to give you, and you won't be able to receive that if you don't join our Teacher Time community.

Dawn: That's right, and we also would love to know what you think about the show. So we have an evaluation for you to fill out. And this is also an opportunity to get some professional development credits for you. So you can use this to – you can receive a certificate after you fill out the evaluation. When you do that, please check at the end that you enter your name and your email address exactly as you want it to appear, and you should get that certificate in about a week.

Kristin: All right, so this is very exciting, Dawn, because today we're talking about Beyond Sink and Float. So science in the preschool classroom! Okay, so today we're going to give you really great ideas to help foster children's scientific thinking skills. We want you to help teachers to learn and think like scientists.

Dawn: That is right. We also will have a featured presentation today with an interview with Dr. Andrew Shouse. Dr. Shouse is the director of the Institute for Science and Math Education at the University of Washington and an assistant professor. He's going to be joining us via Skype, so really great he's going to be with us today.

Kristin: That's great. Okay, so then after that, were going to give you some really great practical activities that you can do in your classroom immediately that are fun, engaging, get children really thinking about observations and thinking skills that will really carry them through your science teaching. We're also going to show you a STEAM planning form that you can use in your classroom when you're planning for STEAM activities. Again, Science, Technology, Engineering, Art, and Math. And how to – what you want to think about when you're planning for those, and be really intentional about the types of activities you plan and also what the children are going to get out of the activities.

Dawn: That's right. We also have our Resources segment, where we're going to be sharing some resources with you, and one of our curriculum specialists, Liz Wimmer, is going to be here to talk to us about some resources that she produced and also some that are also available on ECLKC. Then Dr. Gail Joseph will be with us for the Behavior Management Minute and Resiliency & Wellness, and then we'll do our closing.

Kristin: Okay, so, Dawn, what is happening over here? I know you have lots going on.

Dawn: I do.

Kristin: What you doing?

Dawn: We've got some science experiments.

Kristin: Okay.

Dawn: We're excited about this. So I'm just going to tell you what's going on right now so you can make some observations.

Kristin: Okay.

Dawn: And later on in the show, we'll have you do some more things. But right here I've got three different types of activities going on. There's some lettuce sitting here in colored water. There are three cups here. There's a paper towel in here. There's red water here, blue water here, and an empty cup in here. And you can observe that the paper towel is absorbing some of that water. And over here on this one we have a carnation that's sitting here in some blue colored water. So we want you to – I wanted to tell you about that so you can make some clear observations about what you see. And then later on in the day – or later on in our show you might think about maybe some predictions about what's going to happen with our experiment during the show. So we'll check back in later.

Kristin: Okay, good. All right. That's excellent. Thanks, Dawn. Okay, so before we introduce our guest expert, Andrew Shouse, we have a poll question that we'd like for you to answer.

Dawn: So the question is, when was your first memorable encounter with science? That moment that you first were like, "Science is great. That was very cool." Were you around the preschool age, elementary age, middle school, or high school age? So please go ahead and complete that poll for us, and we will be right back with Dr. Andy Shouse.

[Music plays]

Dawn: All right. Hi, everyone. Welcome back. We are live with Dr. Andrew Shouse. Thanks for joining us, Andy.

Dr. Andrew Shouse: Hi. Thank you for having me. Pleasure to be with you.

Dawn: We're so glad you're here. Andy's joining us from Washington, D.C. via Skype, so we are so excited that you're able to find time out of your schedule to do this interview with us.

Kristin: This is our technology piece, integrating it into our STEAM show.

Andrew: Very impressive.

Kristin: So we just had our viewers take a poll about when their most memorable experience with science. And the biggest numbers are elementary school, some preschool age. Does that surprise you, or is that kind of what you might think?

Andrew: Yeah, it makes a lot of sense to me. I think that the opportunities to engage positively with the natural world and with the built world and to develop a love and a passion for science are ripe in the early years. And I think that's a place where kids are naturally doing that stuff anyways. So it doesn't surprise me that, you know, that developmental activity, being activated by a particular activity, perhaps a lesson, would be very salient for youngsters.

Dawn: Yeah, absolutely. Well, we're so glad you're here today, because we know that you've got some great expertise in science. And so what are some of the highlights from the recent research around early childhood science that would be good for our audience to know?

Andrew: Well, I think there's kind of a pair of things I'd like to say about that. The first is there's research on what is science. There's a whole sociology of what is the practice of science. And we're coming to understand science is an inherently social, dynamic undertaking, something that is pretty fundamentally human. So that's one finding. And then if you think about the research on young children, the really exciting news is that although for a long time we thought that children were very concrete and we kept them basically to a level of observing things and describing them, we now know that they can do a whole range of complex reasoning tasks and that they are intrinsically oriented to building explanations of phenomena. They're doing it inside their heads and in their social worlds anyway, and we have an opportunity to capitalize on that.

Kristin: So, Andrew, what do you think that the best thing for Head Start teachers to know when they are doing science or STEAM activities in their classroom?

Andrew: Teachers – Early childhood educators need to embrace science as an open-ended and social activity that allows kids to ask questions and explore the natural world. That's it. They don't need to be experts in any domain of science. It helps to understand that science is in fact an open investigative process and to have ways of integrating it into their classroom. I think the most important thing for folks to know is that they should get in there and engage in science and help their children do the same.

Dawn: Yeah, that's certainly one of the fears we often hear, that folks just feel fearful of whatever that concept is going to be. Or if they do Sink and Float, for example, can you really explain why something might be sinking or floating? And it's not that you actually need to know that and do a whole bunch of work to figure that out, because I know I would need to figure that out. But it's more about the process of going through that exploration that really matters for teachers to do. So that leads me to my next question, what is it that teachers need to know about science in order to teach it?

Andrew: Well, I think, as I said, they should understand that science is not nearly a body of knowledge, but more of a framework, or a way of looking at the world. And that, I think, opens up all kinds of possibilities for teachers. Yes, having some basic conceptual knowledge of science is helpful, but I think that can be developed and gleaned in the context of the workplace and through independent studies. And the depth of scientific knowledge that teachers need in early childhood is far less important than their openness to engaging students in scientific questions. In fact, I don't think that your early childhood should be focused on helping kids develop, quote, "scientifically accurate reasoning." It should focus on helping them develop their reasoning to express their ideas, to build on their ideas. And so following the child and studying the child and what they do is much more important than studying the books that would indicate what an accurate explanation for a phenomenon might be.

Kristin: I feel like that opens up a lot of freedom for teachers who, again, might be – we have heard many teachers, and I myself when I was a preschool teacher was a little bit fearful of I might say the wrong thing or I might give a child wrong information about a science concept, but just to be able to open up the exploration of any kind of activity it sounds like is what you're talking about. So I'm also thinking about what, you know, the exciting parts of that? And what are teachers going to see from

children when they are introducing new, exciting activities that they want children to really observe and think about? What are they going to see from the children?

Andrew: I think if teachers are asking the right questions and presenting the right opportunities, they'll have an opportunity to study children. And when they do that, they're going to see that children are going to bring their personal lives and their experiences to bear on issues. If you throw a collection of leaves on the table before you go out and play and you keep that activity stocked with new leaves and you pose questions to children, they'll start to anticipate that and look forward to that, and they'll be thinking about that throughout the day. So they'll start bringing their own leaves and they'll start talking about their experiences, and there are all kinds of different scientific questions you can start to pursue. Children are inherently interested in the weather, in the seasons. They can start to talk about why they think the leaves are changing colors, other kinds of associated things that they observe in seasonal patterns. And so you can begin to unfurl a whole host of interrelated ideas that these kids are really tracking and attending to.

Dawn: Right, right. It's that interrelatedness and interconnectedness that we are so happy that we're focusing on STEAM over the course of this year. So what are some of the key messages you want teachers to understand about STEAM and science learning?

Andrew: Well, you know, I put together a couple of slides, and if you could put the second slide up on the screen right now, that might be helpful to your viewers. The most important sort of takeaways that I'd have for your listeners, your early childhood teachers, is that, first, science itself is much more than a body of facts. Science is a social process. There are a host of practices that we now call out in the K-science standards, things that you actually do in relation to the natural world, physical things and intellectual things. I guess the second most important message is what I stated previously, is that young children are not concrete and simplistic thinkers. They can do these things. They may not look sophisticated. You may have to study kids a little bit more closely to understand when they're doing them, but children can and will pursue questions of their own design. They will come up with systematic ways to explore a phenomenon with just a bit of scaffolding. They can collect data, they can make sense of data. And again, if we're not motivated by getting things, quote, "right," we're going to get kids into this and leverage that intrinsic curiosity and interest that they have.

Dawn: Yeah.

Kristin: That's great.

Andrew: I guess the final message is that I know science is under-taught in early childhood education, as it is in elementary. And the advice I have for folks in early childhood is to go where you're comfortable and where the children are comfortable. So building science and STEAM, science and arts, into the routines of the classroom that are known, that are enjoyed by the teacher and the students, and doing that in a way that builds on the strengths of early childhood environments. So, for example, choosing nature-themed books during story time, adding explanatory questions to that. So, "What did you see?" and "Why do you think that's happening?" as patterns in stories unfold. Collecting data, as I mentioned earlier, about the weather during outside play. Drawing and painting what is observed. Of course, representing phenomenon is both artistic and a fundamental practice that we undertake in the sciences all the time. And finally, I guess to play on what is now an emphasis on engineering, that E in STEAM, using materials to build things.

Children love to build, and they love to try different things, and I think that using different materials and reflecting on the qualities of materials and how you connect them and which ones are easier to do certain things with, those kinds of questions about the materials and the building can really promote a scientific perspective on that kind of experience.

Dawn: Yeah, it really makes me think about how important the instructional interactions we talk about all the time, those effective teaching strategies, are going to be for teachers to use. Because it's working on the types of conversations they're having with children or how they might be scaffolding or how they might be building off of children's interests that will be some of the keys to making their science learning more effective in preschool classrooms.

Kristin: That's right.

Andrew: I think that's right.

Kristin: So before we go, I was just curious what you could just tell us briefly about the Next Generation Science Standards and how that might fit into what we're talking about today.

Andrew: Sure. It just so happens that I've been at the national meeting of an organization here in Washington, D.C., this week, and we've just wrapped it up. And that organization, Achieve, is the group that has published the Next Generation Science Standards. And we've been talking about that today with the state policy makers from throughout the country. And the Next Generation Science Standards are a research-based and really nicely articulated body of learning standards that states are electing to adopt. And they have several features I think that are critical improvements over what has happened previously.

Now, these standards are designed for K-, and so they don't speak directly to our – many of our audience members who are in earlier grades, or earlier levels, but I think they're actually really important for us to be mindful of as we think about how we situate students in science learning experiences. I'll call out two features that I think are really important. The first is that they are multi-dimensional. In the past, we've talked about science as kind of a body of knowledge plus a process. These days we talk about three dimensions of science. One is that body of knowledge, which we call disciplinary core ideas. Another aspect is the practices, and I think this is where the rubber hits the road in terms of really advancing the field. The practices are these things that we do in relation to that body of knowledge. And the third dimension is cross-cutting themes, big patterns of things that we see across the sciences. If you would put my second slide up.

Dawn: Sure.

Andrew: Excuse me, it's the first slide after the introductory slide. These are the science and engineering practices from the Next Generation Science Standards. And as you can see, these are things that really are fundamentally human. Asking questions and defining problems. This is something we do throughout the course of the day, whether it's remembering all the things we need to take to school and divining a process for maximizing our success in that, or preparing dinner. We ask questions. Well, what would be a healthy thing to put together for the family tonight?

And you figure out how to sort of define that space. You can reason about all of these practices in a similar way. Developing and using models. Planning and carrying out investigations. Analyzing and

interpreting data. We do all these things in the course of our day-to-day lives, and I think that the good news is that we all have the rudiments of these practices; they're inherent to human development. And so as early childhood educators, finding ways to pull these practices out of students and help them articulate and reflect on them is the challenge. And that's a fun, creative challenge.

Kristin: Absolutely. I'm so glad you talked about all of that. Because I think that these things, when you just maybe read them, but how you just applied them to real life, that we do these things already, and to get to do them in class with children and that they're analyzing and interpreting data, teachers are learning how to do that as well, but we can also teach children how to do that, and I think that that's really exciting.

Dawn: Absolutely. And our teachers are the ones in the field that are going to be the ones that are skilled in kind of communicating and getting that information out of children. Like you said, they are doing it, but how do adults see the evidence of it? And our early childhood teachers are the ones doing that.

Kristin: That's right. Well, thank you so much for being here with us today, and thank you for bearing with us with any kind of issue that we had. And we're happy that you were...

Andrew: Not at all.

Kristin: all the way across the country and still with us. This was really beneficial for our audience.

Andrew: It's my pleasure. It was a really nice opportunity. I'm really happy you're doing this. I think it's a great opportunity for folks to engage with ideas and come together as professionals. Good luck to all you educators out there listening, and thank you for inviting me to join you today.

Dawn: Oh, thank you so much, Andy.

Kristin: Thank you. We'll see you soon.

Andrew: Bye.

Dawn: All right, so speaking of some of those – some of that great information Andy just left with us, we have a chat question for you guys.

Kristin: We do. We have a chat question. We want to know, from what he just talked about, what is on your mind right now? What is your biggest takeaway from what Andrew Shouse talked about, from his messages? So this is a chat question, and to chat with us, we want you to click on the button that says "want to join." You can type in your name there, hit enter or return, and then begin chatting. So we will see you in just a moment.

[Music plays]

Kristin: All right, welcome back, teachers. And we are now going to go into our Try It Out! section. But first, let's check in, Dawn. What is happening with the experiment here?

Dawn: Okay, so we've made some progress. There's a reason we selected this one, because you would be able to see some change during the show. So for your next set of observations here, there's more water on these paper towels, and this cup in the middle is getting filled up with water.

Kristin: Oh, my gosh. It's really working!

Dawn: So it is really actually working. So, Kristin, what are some of your predictions about why this is happening? What's going on?

Kristin: Well, I would say that before we started, I wasn't sure what would happen. And so just being able to kind of sit with it, and observe it, and look at it, thinking about my own questions, thinking about absorbency, clearly the middle of the cup is filling up with water. I do see some color on the lettuce. It's hard to see, but I see it sort of in the strands here. And then the flower is getting some blue on it. I would say that I predict by the end of the show that this cup in the middle may have an inch of water in it. Okay, that's my prediction.

Dawn: That's a great prediction. We're going to check back in the end and see where we're at. All right, so we have two activities in our Try It Out! segment here. We have two activities to talk about today as well as a STEAM classroom planning sheet that will help you plan and think intentionally about the STEAM activities that you want to do in your classroom this year.

Kristin: That's right. So we want to help you as I would have loved to have some science help. We want to help you to add more STEAM science activities and concepts into your curriculum. We want to make it as easy as we can, and we also want to help you kind of raise the bar for science learning in your classrooms by using specific skills that help children become better scientific thinkers.

Dawn: That is right. So we want you to take your activities further than just talking maybe about Sink or Float or maybe asking, "What's the weather like today?" to help children ask more questions, make more observations and more predictions, and help to foster and develop their scientific thinking skills, which are skills that are going to transfer to other areas and other STEAM concepts, just as Andy was talking about. And one way to help foster this is by building up your instructional interactions and engaging activities, and we'll share some of those hints when we talk about our planning form.

Kristin: We will. So one of our resources that Liz Wimmer in just a moment is going to talk about much more in-depth is MESS, and MESS is a fantastic resource. It's the Marvelous Exploration through Science and Stories.

Dawn: Good job.

Kristin: And it really can help you to help children develop scientific thinking skills. And one of the big concepts of MESS is that we want to do science over time, so it's not just a quick burst of "science," but that it's an observation, exploration over time.

Dawn: Yes, really in-depth for preschool children. Because one of the things that they share in that MESS document is some of the less effective approaches that people usually take to science.

Kristin: Okay. I've probably done all of these less effective approaches in my teaching days. Dawn: Absolutely. Absolutely.

Kristin: I will not anymore, though.

Dawn: I know I did as well. And one of them is the magic show type of science. So we actually had – we wanted to do an experiment today, and we actually thought it would be a great idea if we did that exploding pumpkin one that one of our viewers actually mentioned in the show, because it would be

great and fun and we would get to see it explode. But that really is more so like magic show science. It's great, it's engaging, you get to see a change right in front of you. There's lots of things that children would get out of that. But it might just be one thing that you do, and it's over. So it's not like there is a continued learning and time for children to really make some more observations, because it happens real fast.

Kristin: That's right.

Dawn: So you could repeat it every day, I suppose, for a week or so, but the point is with the magic show type science, you want children to have more time engaged with a scientific process, and that can be a little bit limited. So not that you shouldn't do those things, but it needs to be incorporated into your overall science unit that you're doing.

Kristin: Okay, so you're exploding your pumpkin. Think about what you can add to it to build on children's thinking skills, right, through that activity.

Dawn: Yes.

Kristin: Okay. That's great. So another thing that I always did and that MESS talks about may be a less effective approach is to just use science in your arts and crafts area. Like feathers, making feathers, or maybe making some butterflies out of the coffee filters, that kind of thing. Again, fun, great activities to do. Continue to do those activities. But if that's maybe your only science thinking or your science activities, maybe extend those a bit. So maybe look at live butterflies, right? In a live butterfly kit. Or bring in feathers from the outside that you find after washing them, of course. So again, just extending the science activities not just in art but in other areas of the classroom.

Dawn: That's right. And another one is hodgepodge science. That's the idea that you might do something where you're exploring some flowers outside, and then maybe a couple days later you're investigating different types of seeds, like lima beans or sunflower seeds. Or the next time you might be doing something with absorption. The idea that your science experiences are a bit piecemeal. And so you're doing lots of different things, but there may not be an overall investigation that brings it together. And so one of the things that Liz will talk about in MESS is that there are whole units. Like there's a unit on kitchen science, there's a unit on animals, there's a unit on observing outside. And how you do those over time, over the course of – I want to say like there's 12 or 16 lessons in each one of those, so that there is a more coherent theme overall that preschoolers are investigating. Because attention spans aren't very, very long. And if you want children to really start to understand some of these concepts, you need to give them more time with it.

Kristin: That's right. Okay, that sounds great. So one other kind of piece that is maybe a less effective approach, again, instead of just having a science center, having a science center, of course, which is great, but maybe not having that be your only spot for incorporating science throughout your classroom. So thinking about – I think we have some photos, too – thinking about having science in – science concepts and ideas for getting children thinking in your sand and water table. Again, we all have sand and water tables in our classrooms. How much science and scientific thinking skills, exploration of water and movement, can we put into our sensory table? Thinking about dramatic play. I never thought about putting science concepts or thinking, you know, science questions for children in my dramatic play area. But thinking about all of the science involved in cooking, transformations. We're going to come up

with another activity pretty soon that will easily be able to be incorporated into dramatic play. But also thinking about other areas of your classroom. So block area as well. Thinking about how you can incorporate science and STEAM activities into your block area. Lots and lots of ways to do that. And get creative. Think about bringing science outside, bringing science – what science books are you putting in your literacy center? The kind of science, maybe science movement activities you could do during circle time, all of that.

Dawn: Right, right. So one of the – The first activity we wanted to share with you is called Sit Spots. Really cheap, you don't need to do anything. You don't need to get – buy anything for it and you don't need to prepare any materials. So the idea here is that these are observations done over time using an investigation journal or some other type of journal that you have in your classroom, and each child has the same spot they sit in over time to make their observations.

Kristin: Okay. So this is maybe sort of an outside area, right, that we're thinking of?

Dawn: Yes.

Kristin: So here's some photos of children engaging in science explorations outside. So a sit spot, as Dawn just said, they may be sitting in the same spot over time. This is not just a one-day, but it's maybe once a month. And they look at the same patch of grass or they look at the same bark on a tree or they look at plants over time in the same area. And they write down words, letters of what they see. They observe the seasons, the weather. Maybe they're measuring the rain that happens in their area, snow. And they're drawing pictures, too, about what they see. So they have a scientific journal, something that can come with them that's portable. I'm just thinking of Darren, Teacher Darren, who we talked with earlier. His program is right in the middle of a very busy part of our city here, and they don't have a big green space in their back area as these children do here. And so they actually do their observations and things off-site. They go to a green space that's nearby, and they observe what they're seeing at a park or at a green space that's nearby. So things are portable for them to take.

Dawn: Yeah, and you can think of this as a way to add some more STEAM to the weather activity that you do. Weather is a really common activity that happens in preschool classrooms. But with this, doing the sit spots, you could add some more interaction. I want to say different questions and observations, like you're adding scientific thinking skills to the activity of talking about the weather and through your observations that you might be doing over time.

Kristin: That's right. So I'm thinking of this one, right? This is an observation that we are doing over time. And I'm excited that it's still happening.

Dawn: It is.

Kristin: My prediction. So, yeah, I think over time, right, is the – that's the big key.

Dawn: Right, right. All right. And then our activity, too, about transformations. Kristin: Right, so transformations is something that just seems very simple, but how fun it is for children to observe transformations. So how does something change over time? Again, we're watching this right here as it happens. And so this could be done in many, many different ways, and we're going to show you a really fun activity that we've seen in a classroom with this sculpture.

Dawn: Yeah, and just as Andy was mentioning, there's lots of understanding that children already have. And transformations is probably one of those things where they could – once you really explain what you mean by transformations, they probably have tons of examples of transformations that they've seen or observed and already have an understanding of this process. So here's this cute little snowman all frozen up. This was taken in one of the classrooms we were able to visit. And perhaps this snowman is the thing that's in your science center. And maybe you change out what the different transformations might be in your science center over the course of a few weeks. But next to it we've got some salt, and we're going to be observing how salt is going to help melt this ice snowman. But you could also think about how you might incorporate this into dramatic play. In the kitchen, that might be where you could make some ice in the freezer. You might be able to melt the ice in a different way by running water on it or putting it in the microwave.

Children can get really creative about how they do that. You could also maybe think about the block area. Maybe some of those can be used to make some type of structure for our snowman, or maybe to chip away at our snowman if that's something you want to do. But the idea is that you're using – you're taking the idea of transformations and incorporating it into multiple areas in your classroom. And you might also have some conversation starters in that dramatic play area, questions about, how would you make this ice melt? Or what would be some of the steps you'd have to take? So maybe those conversation starters you could have ready to go and questions to be asked that are just sitting there posted in your dramatic play area.

Kristin: That's right. What do you think is going to happen when this snowman gets warm? What do you think's going to happen when we put salt on it? Children won't know what's going to happen, but we're just going to let them observe, try it out. How does it feel? How does it – all of that. I think that it would be very fun to come up with a lot of questions to post by this. And again, it's portable. You can transfer it into different areas of the classroom. Okay, so the STEAM planning form. And this is a form that we are going to send you that will come in the follow-up.

Dawn: Okay. So the STEAM planning form, what we have there are different categories you could use to try and integrate some of the STEAM planning into your classroom.

Kristin: Right, so this is going to help with thinking really intentionally about what you want to – what you want the children to get out of your scientific exploration or your concepts. So here's an activity in this left-hand column: Sink and Float. A lot of classes do this. It's a very fun activity. And what do you want the children to get out of this activity?

So we have some examples here of what we were thinking about. Really the learning objectives: fostering curiosity, categorization skills, observation skills, just allowing children to learn how to observe something. What happens when I drop this in? What happens when I drop this in? What's going to happen? What do you think will happen when... or do all plastic things float? All of that kinds of things. But really getting their curiosity going with this. The Head Start Child Development Early Learning Framework domains, thinking about science knowledge and skills, logic and reasoning. The teaching strategies that you want to use. Again, we talked about posing open-ended questions, maybe posting those questions, extending children's thinking about Sink and Float. The assessment piece. What do children already know about Sink and Float?

What do they already know about these materials or water or what happens when we drop something in water that's heavy? So that assessment piece right there. The STEAM area that you're going to work on, science and math. It could be even more areas that you could put in. This is just an example. And then the scientific thinking skills that are generated: observing, asking questions, testing out their thoughts. All of that you might think about when you're planning your science activities.

Dawn: That's right. So this is a form, again, that we're going to send to you. If you've joined our Teacher Time community, you will receive this, and it can help you be more intentional about how you might incorporate some of these STEAM activities into your classroom. All right, so we have a chat question for you. Which activity will you try first? When we come back, we will be back with Liz Wimmer, who produced some of our science toolkits, and we'll be talking to her about some of the resources.

Kristin: All right, we'll see you in a minute.

[Music plays]

Kristin: All right. Welcome back, everybody. We are now here with our Resources section of Teacher Time. And we're here with Liz Wimmer.

Liz Wimmer: Hi, I loved your ideas with the sit spot and the transformations. Very cool.

Kristin: It sounds like people are really chatting about those. I think a lot of people really liked the transformation activity, too. A lot of excitement about that. So that's great. So what do you have to show us, Liz?

Liz: Well, I know you all already mentioned the MESS guides that are on ECLKC, and there's a picture of them all if you haven't seen them yet. And there's a range of topics, as you can see. So we were just going to take a quick look at one of the – one of the guides here.

Kristin: Okay. Good.

Liz: So this one was Plant Life that I picked out. And these are a free resource on ECLKC that you can access, and it's developed by the Florida Museum of Natural History at the University of Florida and funded by a Head Start grant. But using these can help build confidence for you as you're trying to help children with investigation and with thinking skills. Because right inside, in addition to all the multiple lessons, are these – this really handy background information. So they're topics like, what are plants, what are the parts of a plant? So if you don't feel as confident as you would like to be in this area, you can use this to beef up your knowledge. And then there's also a very nice section with all the vocabulary words. So if you don't remember what photosynthesis is, it tells you right here.

Kristin: I love that. Good.

Liz: So this is just to help you. And then it gives you lots of lesson plans. I was just going to look at one really quickly: Where do seeds come from? It gives you the aim of the activity, materials, books, vocabulary. And these are pretty simple. So this particular one is looking at fruits and having children observe where the seeds are, and of course there's lots of extensions, math activities, counting, graphing, things that you can jump off of from there.

Kristin: That's fantastic. Well, I like how Andrew Shouse was talking about how we don't all have to be experts in everything, and that sounds like just exactly the kit that I could use in my classroom, right?

Dawn: Yeah, and ready to go.

Kristin: Yeah. Liz: Yes. Perfect.

Kristin: That's excellent. Good, what else is –

Liz: Well, you're probably wondering where you can find that, so we were just going to look for that really quickly.

Kristin: Okay, great.

Liz: And so here in the science toolkit, which I'm going to tell you where that is in just a moment. But you can find the MESS in the "Do" section. You can see it circled right there on the page. There's a screenshot of it. So to find the toolkits, if you go the NCQTL web page and you look for our little house icon, you can see here the research-based curricula and teaching practices pillar. On that page, when you go to this section, you'll find the science knowledge and skills domain along with the rest of the domains, and that's where the toolkit is.

Kristin: Excellent. Okay, good. And I know we have another resource, too, that has come out, and it's also in the science toolkits, correct? It goes with one of our suites that we've previously had.

Liz: Yes, that's right. We'll move right to that. And this is a new resource up on the toolkit page, also in the Do section. And I guess I don't need to hold it up, because it's on the page. The "Using the Scientific Method" poster. So this is for teachers to hang up in your class, and it reminds you of kind of key science skills. And then on the right-hand column are some words that you can use to talk with children to encourage them to express their thinking and to investigate. So keep checking back with the toolkits, because we're going to be putting up lots more NCQTL materials.

Kristin: And there's videos also, Liz, on the toolkits, is that right?

Liz: Yes, there's videos in the "See" section that show examples of teaching practices. And we'll be putting up a lot more NCQTL video there.

Kristin: That's exciting, because I know we don't have any video today for everyone to watch, but we have lots of science videos that are being produced and going to be up there. So that's fantastic.

Liz: Definitely.

Dawn: All right. Thank you, Liz.

Kristin: Thank you so much, Liz.

Dawn: All right. So we are going to take a short break with a poll. We want to know how many are watching with you, if there are Teacher Time watch parties going on. And then when we come back, Dr. Gail Joseph will be here with us for the Behavior Management Minute and Resiliency & Wellness. And during the poll, you'll hear some music.

[Music plays]

Dawn: Hi, everybody. We are back with Dr. Gail Joseph. Hi, Gail.

Gail Joseph: Hi. Kristin: Hi, Gail.

Dawn: Thanks for being with us again here.

Gail: I'm here in my sit spot studying your transformation over time.

[Laughter]

Dawn: We have. We've been doing it over time.

Kristin: Please don't get a magnifying glass out. I'm frightened.

Dawn: All right, so Behavior Management Minute. Okay.

Gail: Yes, okay. I'm going to do this quickly so we don't have a behavior management hour. So let me – So I love this topic. It's so exciting. Like, Teacher Time always makes me want to go back in the classroom the very next day and try all these things that I didn't know about when I was teaching. So what a great resource. Andy Shouse, one of my favorite people. How wonderful to have him on. Liz, I want to follow her around and get all her resources. It's so fantastic. Okay, but let me tell you what I observed. So I observed a teacher who was so phenomenal thinking about science, and that idea of transformation that I know a lot of our viewers have been excited about, this idea of transforming, and when will the ice man melt and those kinds of things. This teacher was going to do a transformation-focused science kind of experiment at small group time, building on this idea of transformation. So she was going to take some apples that had been sliced up and put in some water and some other apples sliced up put in some water, heat them up, one of them was going to get heated up, and they were going to watch the transformation of these apples into applesauce, basically. Great idea. She had great questions, all that kind of stuff. So she's got it ready, she's thinking about it. She rings the bell, it's time for small group. The kids run – Chaos, right?

So here our good planning thinking, a little bit goes crazy because the teacher is calling the children over. Well, they all go to her small group table... there's a lot of pushing and shoving about who's supposed to be where and all of that kind of stuff. Finally, she gets the children to the three different tables, the teachers kind of get to the three different tables, and that's when we find out that one of the teachers hasn't had all the materials prepared as needed. And so anyways, it just kind of – the learning was not maximized in that moment. And so we just thought, ah, behavior management moment is what we need in this situation. So here's a few little tips, because some folks will be doing science, I'm sure, throughout the day. Small group might be a time they're going to do it as well. So we will talk a little bit about some tips here.

All right. First one is when you have a situation where you're going to have small group that's going to happen at multiple tables – so I often had children in my Head Start classroom, and we sat at three different small group tables, so children at each table – is to keep the same children sitting at the same table for an extended time, right? So maybe a month they kind of stay at the same table. And that helps for a lot of reasons, because if you keep the same children at the same table, then when you ring the bell and say, "It's time for small group," they know which table to go to. So we don't have this chaos of everyone coming to one table. They know, "Hey, I sit at the purple table, right, so I go to the purple table and sit down." Some children might need even some extra information, like maybe their names are on a chair for small group time and they know that that's their chair. This is a great tip when you have some children that might need a different-sized chair so that they can still be at the table, but we know Dawn goes to Dawn's chair, Kristin goes to Kristin's chair. So another great way to eliminate some of that

chaos that might happen going to small group, they just know, "I go straight to that chair." The other thing that happened, though, is that not being prepared in advance. So here's a little tip that I used to do in my classroom that was really fun.

So I had three different tables, and they were all different colors. So you might have the red, blue, yellow. Here we have the green, purple, and yellow tables. And then we had green, purple, and yellow tubs. Or you could have trays. And then somebody in the morning or the evening before, the afternoon before, preps everything that you're going to do for small group at that moment and has that – as much as you can have prepped – in the bins. Now when I say, "Ding-ding-ding, it's small group time," somebody might also be the table captain, and they run, grab the purple bin to go with the purple table, and there's the materials already prepped and ready to go. You can also be thinking about that child that might need a modification or adaptation and put that adaptation in there as well. And then the final thing is to have something children can activate on their own right away, right, so they can get going independently. And sometimes when we have experiments or things like that, it's a teacher-activated activity. But sometimes that means children just have to wait. So I would throw something in the bin, that even if you're going to get to the experiment, that children can just start on their own right away while they're waiting.

Kristin: Yes, I love that.

Gail: Behavior management minute, and now we can get on with the transformation activity that that teacher had planned.

Kristin: Okay, I love it. Dawn: Awesome. Kristin: That's fantastic, Gail. Thank you.

Gail: Of course. Kristin: So we are – I just have to tell you that we've gotten lots of positive feedback about the Behavior Management Minute. Really exciting about that. So before we hear about Resiliency & Wellness from Gail, we have a poll question for you. And we want to know which show you would like to see us rebroadcast next month. So January 2015 , we're not going to have a live Teacher Time show. We are going to rebroadcast one of the favorite Teacher Time episodes that you right now will get to choose which that will be. We're going to be back live in February, but for January, we are going to rebroadcast. Dawn: That's right.

Kristin: All right, so your choices. Would you like to rebroad – Would you like us to rebroadcast the show about challenging behaviors, prevention strategies? We have a show on digital media that was great information about how to use digital media in the classroom. Coping with big emotions, how children can handle those big emotions in the classroom, strategies for that. And then also teaching children how to problem solve. That's another show we did. So go ahead and put in your answer for your idea for which show, and we'll be back very soon.

[Music plays]

Kristin: All right, everybody, we are back now from our poll. And we are of course with Gail for our Resiliency and Wellness section.

Dawn: I can't wait.

Kristin: This is the time of year, Gail, too, I'm just talking about. Reports are done, are due for classrooms, not to mention holiday stress. Busy, busy, busy lives. So take it away.

Dawn: Help us.

Gail: All right, okay. Well, we all know that we can be better teachers, better parents, have more effective moments when we're able to manage our stress, when we feel better. So that's why we dedicate this section to Resiliency & Wellness. We always come with some type of kind of tip. We've talked about how to think differently, those kinds of strategies. I have a very practical tip. It's probably just because I've been experiencing this in my own life right now, so I want to talk about it, but there is probably a big stressor for folks, and that is when you're running late in the morning. So I don't know about you – I like to be a very calm, loving mom, but when I'm running late in the morning, I start getting a little bit, eh, my voice is raising.

So it's a real stressor for me. And then I can imagine those days that I had that stress and walked into the classroom, it just kind of feels even more stressful. And another big stressor can be even just kind of some clutter or some things are not done, right? So you wake up and – I'm sorry, I should be making you feel better. It's not doing that. But you wake up in the morning and you head into the kitchen, and there's a pile of dirty dishes. You just feel defeated already, right? And for some of us who kind of tend to catastrophize things, then it's like, oh, wow, the whole day is going to be bad because of this. So I have been doing some reading. I found this great tip, and we started using it at our house, and it's fantastic. And so Gretchen Rubin, who wrote "The Happiness Project," lots of little tips about how to embed some kind of stress management strategies and happiness strategies into your own life, writes about this little tip called the 10-minute tidy. And I bet some of our viewers do it. And you were saying you do it at home, too.

Kristin: Yes, yes, we do.

Gail: So I brought you something – I always bring you something. And today I brought you stopwatches. And it's not to measure how late you are, because that would increase your stress a lot, but it's to do this thing, this 10-minute tidy. So what is it? The 10-minute tidy is you embed it into your evening routine. So you find a time and you set the timer – you set the kitchen timer, you set a timer, and it's the 10-minute tidy. And it's a time for you to do things. I'm going to list things that I do during my 10-minute tidy, but you can think about what might help alleviate some stress in your own house so that you're ready to go the next day. So in my 10-minute tidy, I do the dishes so that when I wake up in the morning, it's a clean sink, right? That's a nice one. Put my clothes out for the next day so I'm not trying to find that shoe under the bed or wherever.

Put my keys by the door so I don't panic. I try and as much as I can the night before pack a healthy lunch and snack so I don't like run out of energy during the day or hit the vending machine or hit that fast food restaurant on the way and not feel good. Prep for a healthy breakfast. Maybe if I've got enough time left, I might sort through the mail, make sure I'm not like missing time-sensitive things, so making that a regular occurrence and getting things recycled that can get rid of some of that clutter. But the other great thing about this and that we've been doing is you can involve the whole family. So now this is like the whole family 10-minute tidy.

So the children are --they have their list of 10-minute tidy, they're getting their backpacks ready for school the next day. Their shoes are by the door, so we don't have this "where are your shoes?!" moment. They're ready to go. They can help clean up a little bit. And just minutes a night, it keeps the house relatively ready to go and alleviates a lot of stress and prepares you for the next day. So we talk

about minutes tonight for a terrific tomorrow. So that's what we do. So that's what your stopwatch is for.

Kristin: I love that.

Dawn: Ten minutes can absolutely do that.

Gail: That's right.

Kristin: Oh, absolutely, and looking at the timer, and it's going to be clicking down as you go. You don't feel like it's a five-hour cleanup that you need to do.

Dawn: No, I only have to clean for minutes.

Kristin: Right? We can do that.

Gail: And a little secret, sometimes we do 5-minute Friday because that's a little treat. But for the most part, it's 10-minute tidy.

Kristin: Thanks, Gail. That's fantastic. That's great.

Gail: Okay, but I just have to know what's going on with that experiment over there.

Dawn: Yes, okay.

Gail: I can't leave without that.

Dawn: Let's check in one more time here. So, absorption. We've got some more water here in the middle of our cup. We're very excited about that. So for some of your predictions...

Kristin: Okay, I thought maybe an inch. I wasn't sure. I don't know. What do we think?

Dawn: There is more water in there. It may not be an inch, but, you know, one of the things, I did this at home with my girls, and I had my 4-year-old taking pictures of it with my cell phone along the way. So we had a series of it. We did it for every five minutes for this one. And this carnation we actually started yesterday, and the lettuce we started yesterday as well. So we were doing this just in the morning when we got home, when we went to bed. And so we have a series of pictures on the cell phone, so we're integrating some technology in there. But we also had our own little investigation journals at home, and they drew some pictures of what was happening as it's all going on. So here you go.

Kristin: I love it, Dawn. I'm so excited. I hope people try this, because this one, especially this walking water, is so fun to actually see it happening. And of course these you could look at, like you said, over time, a long period of time. But good, I'm so glad you did this, Dawn.

Dawn: Oh, I'm glad we get to have a little fun. Kristin: You're such a scientist.

Gail: I'm getting her a lab coat. Kristin: Yes! Gail: She's ready.

Kristin: Yes, she does. She needs it. That's perfect. Okay, good. Well, thank you, Gail, so much. And we will be right back with our closing announcements.

[Music plays]

Kristin: All right. Welcome back, audience. We are closing our show for today. We have had a really fun time talking with Andrew Shouse, with Gail Joseph, with Dawn and her science experiments.

Dawn: And with Liz.

Kristin: With Liz, absolutely. The resources are there for you. So we want to hear from you. Stay in touch. Give us the pictures that you do or chat with us about your science experiments and send us pictures: ncqtl@uw.edu. We want to know what you're doing in your classroom that's related to science, STEAM, technology, art, math, all of that.

Dawn: Absolutely. And when you do, we'll have a token of appreciation to send for you, and we'd love to feature it and show it on the show. So please do that. I hope you signed in and joined our Teacher Time community. We'll be sending the follow-up to you after the show in about a week, and the worksheet we shared today, that STEAM planning form, will be included in that as well.

Kristin: That's right. You can look at the Office of Head Start's Facebook page as well and follow us there. It's a really exciting spot where right after the show, even days after, there's lots of talk on it. Okay, evaluation certificate. That evaluation will be open for the next hour, so you have time to do that. You can expect your certificate – I think you might have just said that.

Dawn: No. You got it.

Kristin: Okay, good.

Dawn: All right, we have the results for our rebroadcast on January 9th. We will be rebroadcasting one of the challenging behavior shows. So for that it's still a professional development opportunity. You can get a certificate for that. And you can still do that over the course of that next month, and we'll have the evaluation open just like we do the same way today for the show.

Kristin: You can always find recordings on teachertime.org and on the ECLKC. So if there's anything you've missed, please feel free to go and watch those.

Dawn: All right, thank you all for joining us today. And as promised, here's your moment of aww.

Kristin: Aww! Bye.

[Video begins]

Girl: The sun went up and then the moon went down.

Teacher: Uh-huh, but what happened to the ice on the floor? Remember you see, there was ice? What happened with the ice when the sun came out the next day?

Girl: It's not going to melt.

Teacher: It's not going to melt?

Girl: Unh-uh.

Teacher: Why not?

Girl: Because it's going to be a mystery.

[Music plays]

[End video]